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**17.02.93 Bulletin 93/07**(71) Applicant: **SPACE SYSTEMS / LORAL INC.**  
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**London WC1V 7LE (GB)**(54) **Circuit bypass device.**

(57) A circuit bypass device (30) having terminals (70, 80) is connected to contacts (70, 80) of a cell (20) to provide a conductive path (40) in response to voltage excursion therebetween. Device (30) includes: a conductive shunt (40), coupled to contacts (70, 80), that is movable from a normally non-conductive position to a conductive position between terminals (70, 80); a detector (50), coupled to conductive shunt (40), for sensing voltage excursion beyond specified limits between contacts (70, 80); and an actuator (60) having a heat-to-recover shape memory metal alloy that is formed to contract when detector (50) senses the voltage excursion, for moving conductive shunt (40) from the non-conductive position to the conductive position. The formed alloy is preferably spring-shape which contracts translationally and torsionally.

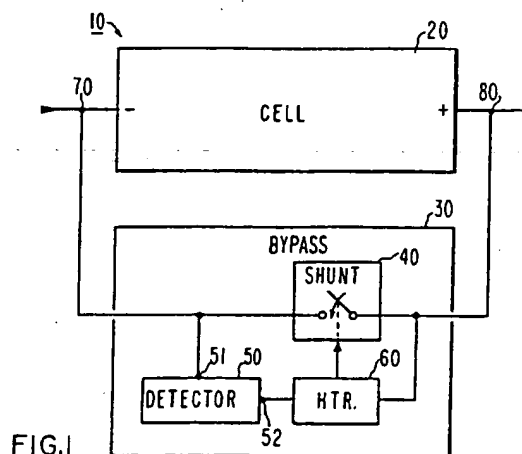


FIG.1

**EP 0 515 024 A3**



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# EUROPEAN SEARCH REPORT

Application Number

DOCUMENTS CONSIDERED TO BE RELEVANT			EP 92302443.4
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
A	<u>US - A - 5 001 446</u> (KOJI TSUJI) * Abstract; column 2, line 58 - column 3, line 21; column 4, line 24-61; claims; fig. 1 *	1,8,9, 10,11	H 01 H 37/32 H 01 H 71/18
D,A	<u>US - A - 4 825 184</u> (J.T. BLOCH) * Totality *	1,6	
D,A	<u>US - A - 4 524 343</u> (R.U. MORGAN) * Abstract; column 2, lines 4-40; claims; fig. 1-5 *	1,6,9, 10,11	
D,A	<u>US - A - 4 490 975</u> (J.R. YAEGER) * Abstract; column 1, lines 5-12; column 3, lines 42-59; claims; fig. 1-4,6-11 *	1,6,7, 8,9,11	
D,A	<u>US - A - 3 573 550</u> (L.P. BAKER) * Abstract; claims *	1,5	
A	<u>EP - A - 0 160 533</u> (RAYCHEM CORPORATION) * Abstract; page 9, line 19 - page 10, line 3; page 15, lines 9-25; claims; fig. 1-3 *	1,8,10	
A	<u>WO - A- 90/15 430</u> (RAYCHEM CORPORATION) * Abstract; claims; fig. 1-6 *	1,8,10	
The present search report has been drawn up for all claims			
Place of search VIENNA		Date of completion of the search 06-07-1992	Examiner ERBER
<b>CATEGORY OF CITED DOCUMENTS</b>			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			
T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons A : member of the same patent family, corresponding document			